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EDWARD J. FAEDER, Ph.D., R.E.A.
DIRECTOR
ENVIRONMENTAL PROTECTION & SAFETY

November 22, 1988

EJF 1188/167

Ms. Paula Bisson
State Programs Section
U.S. Environmental Protection Agency
Region IX
215 Fremont Street
San Francisco, CA 94105

Dear Ms. Bisson:

We prepared this letter and the accompanying materials are in response to your letter of October 27, 1988. They contain information relative to groundwater contamination in the San Fernando Valley.

We are currently preparing or gathering certain reports and data identified in your list of requested items. These will be provided to EPA on the dates specified in our response package.

I am pleased to learn that EPA has contacted the facilities that we identified as potentially responsible parties. Should we develop information on other suspected sources we will certainly forward it to your office.

If you have any questions on the information provided herewith, please contact Ron Helgersen at (818) 847-6927.

Sincerely,

A handwritten signature in black ink, appearing to read "Edward J. Faeder". The signature is fluid and cursive, with the first and last names being more prominent.

Edward J. Faeder

EJF/BM:cj

Enclosure

Ms. Paula Bisson
Mailing List
EJF1188/167
November 22, 1988

W/O Enclosure:

E. L. Graham
R. N. Helgersen
W. W. Hoyer, LA DWP
T. L. Kubani
F. Lantz, Burbank PSD
F. H. Reed
T. J. Reed
D. N. Urquhart

RESPONSE TO THE EPA INFORMATION REQUEST

Reference: Letter from Paula Bisson of EPA Region IX
to Dr. Edward J. Faeder of Lockheed
Dated October 27, 1988

Submitted by: Lockheed Aeronautical Systems Company
Burbank, California

November 22, 1988

ITEM 1: PHASE 3 WELL COMPLETION AND GEOPHYSICAL LOGS

The following two reports contain well completion and geophysical logs for Phase 3 wells:

Report on the Installation/Construction of Groundwater Monitoring Wells at the Lockheed Burbank Facility; Areas 1, 2, 3, and 4. September 11, 1988.

Report on the Installation/Construction of Groundwater Monitoring Wells at the Lockheed Burbank Facility; Areas 5, 6, 7, and 8. (In preparation).

The first report was submitted to the California Regional Water Quality Control Board on September 18, 1988. A copy of this report is herein enclosed as Enclosure No. 1. The second report is still in draft form and under internal review at Lockheed. We anticipate that we would be able to submit this report to the CRWQCB by December 23, 1988.

ITEM 2 - AQUIFER TEST RESULTS FROM PHASE 3 WELLS

The following report, which was submitted to the CRWQCB on October 13, 1988, contains the results of the only aquifer testing conducted on Phase 3 wells:

Results of Isolation Pump/Sample Testing, Aquifer Testing, and Sampling at Selected Groundwater Monitoring Wells; Lockheed Aeronautical Systems Company Plant B-1, Burbank, California. October 6, 1988.

A copy of this report is herein enclosed as Enclosure No. 2.

ITEM 3 - WATER QUALITY DATA, PHASE 3 WELLS

The sampling and Analysis Report on the remaining Phase 3 monitoring wells is in preparation and will be submitted to the California Regional Water Quality Control Board on December 15, 1988. A copy of the report will be provided to EPA.

ITEM 4 - SOIL VAPOR EXTRACTION SYSTEM RESULTS

The referenced cleanup and Abatement Order specifies December 15, 1988 for submittal of the report on the evaluation of the SVE system. Although the SVE system became operational on August 1, 1988, much of the initial operation has been of parametric nature to establish optimum operating conditions and to identify and resolve equipment and process-related problems (See Monthly Progress Reports for August, September, and October). The total steady-state operation of the system has not been of sufficient duration to allow any detailed evaluation of the system performance at this time. As reported in the August Monthly Progress Report, analysis of samples of the influent and effluent during an initial test run, however, verified that the SVE system was performing as designed.

To ensure use of an adequate data base for system evaluation, Lockheed has indeed requested the CRWQCB to extend the deadline for submitting the evaluation report to January 31, 1989. This extension will allow collection of additional performance data for

use in the evaluation. The system evaluation report that will be submitted to the CRWQCB will contain the operation data and the performance evaluation results. A copy of this report will be submitted to EPA.

ITEM 5- SOIL BORINGS AND ANALYSIS FROM AREAS WHERE SOIL GAS CONCENTRATIONS ARE HIGH

Even though the results of the Phase 5 and Phase 6 soil-gas survey work suggested the desirability of conducting confirmatory soil borings and sample analysis in areas of high soil-gas concentration, limited borings in the vicinity of Building 175 proved inconclusive in showing a strong correlations between soil contamination and results from soil-gas samples. Accordingly, no additional confirmatory soil borings have been conducted in areas of high soil-gas concentration, pending development of a better understanding of the site stratigraphy, historical chemical handling and disposal practices, and man-made subsurface features which may act as likely conduits for vapor transport.

ITEM 6 - LOGS FROM BORINGS 6 and 7 NEAR CLARIFIER B1-ZB

The logs from borings 6 and 7 near clarifier B-1-ZB are provided as enclosure No. 3.

ITEM 7 - STATUS OF MULTI-SCREENED WELLS

As was reported in monthly progress reports for August and September, LASC has decided to convert the existing multiple-screen wells to single-screen wells by pressure grouting each well up to just below the bottom of the uppermost screen. After extensive discussions with companies which specialize in well abandonment, a conceptual design has been formulated and work is currently in progress to finalize the design for submittal to DOHS for approval prior to implementation.

ITEM 8: INFORMATION ON TANK LEAK PROGRAM SINCE 1985

A summary of tank testing, removals and cleanup operations since 1985 will be included in the revised Site Assessment Report scheduled for submittal to the California Regional Water Quality Control Board in June, 1989. A copy of the report will be provided to EPA.

ITEM 9 - PIPING DETAILS FROM BUILDINGS 175 & 180

Buildings 175 and 180 have undergone major modifications since their construction in 1942 and 1970, respectively. The number of piping drawings stored in our drawing files are too numerous to include in this submittal. These drawings, however, can be reviewed by EPA in our office and specific drawings can be reproduced.

The detailed construction drawings of clarifier B-1-ZB and its associated piping was destroyed following the abandonment and filling of the clarifier in 1985.

A description of the pipes leading to and from the clarifier is as follows:

- o One four inch diameter pipe ran from a sump in the degreaser pit just inside the north wall of Building 175 to the first stage of the clarifier. Although, the pit was normally dry, liquids did occasionally collect from overflowing of adjacent process tanks or water pipe leaks. In such cases, the pump was activated to move the liquids to the clarifier.
- o A one inch diameter drain line ran from a deionizer unit to the first stage of the clarifier. This line, which was approximately 20 feet long, was installed to carry excess, slightly acidic water generated during regeneration of the ion exchange beds, to the clarifier.
- o A four inch diameter outlet pipe ran from the second stage of the clarifier east approximately 100 feet and connected to a sewer line which ran from inside Building 175 to the Burbank sewer line in Empire Avenue.

ITEM 10 - EXTRACTION PUMPING SYSTEM DETAILS AND ANALYSIS

10.1 Specifics of Extraction Well Details

The following document, which is currently in draft form and under internal review at Lockheed, contains well completion and boring logs and information on the development procedures, pump design, equipment and methods for measurement of water level in the well, etc. for the extraction well:

Report on the Installation/Construction of the Building 175 Groundwater Extraction Well, Plant B-1, Lockheed Aeronautical Systems Company, Burbank, California; November 28, 1988.

We anticipate that we will be able to submit this report to the CRWQCB by December 23, 1988. A copy of this report will also be forwarded to EPA.

The groundwater treatment system evaluation report, mandated by the Cleanup and Abatement Order will contain information on well head instrumentation and the results of analysis of the water samples from influent and effluent to the treatment system. As noted in the response to Item 4, The Cleanup and Abatement Order specifies December 15, 1988 as the date for submittal of the report on the evaluation of the groundwater extraction and treatment system. However, since the total steady-state operation of the system will not be of sufficient duration to allow any detailed evaluation of the system performance by the indicated deadline, Lockheed has requested the CRWQCB to extend this deadline to January 31, 1989. This extension will allow collection of additional performance data for use in the evaluation. When available, a copy of this report will be submitted to EPA.

ITEM 11: QUARTERLY MONITORING OF SUCTION LYSIMETERS

In November, 1983 the California Regional Water Quality Control Board, Los Angeles Region (CRWQCB) directed Lockheed to conduct an underground tank leak detection program at its Burbank facilities following the "Leak Detection Program Guidelines" prepared by the CRWQCB.

Lockheed's plans for the leak detection programs at its plants A-1, B-1 and B-6, as approved by the CRWQCB, included the installation of suction lysimeters in lieu of vapor monitoring wells at tanks, sumps and clarifiers which did not contain volatile organic materials.

The final results of the tank investigations at plants B-6, A-1 and B-1, submitted to the CRWQCB in January, February and April, 1985 respectively, did state that the lysimeters would be monitored quarterly. However, this program was never implemented when it was determined that analytical data derived from lysimeter sampling would not satisfy the requirements of the County of Los Angeles Underground Storage of Hazardous Materials Guidelines published in October, 1984.

Lockheed is currently acting under direction of the Los Angeles County Department of Public Works to complete a program which includes, among other things, tank integrity testing, installation of in-tank monitoring equipment, continuous leak detection systems and the preparation of a tank monitoring program.

ITEM 12: SUMMARY OF PCE AND TCE USAGE

Prior to 1966 TCE was used solely as a vapor degreasing solvent. In that year the Air Pollution Control District (APCD) adopted Rule 66 which restricted the use of photochemically reactive solvents and Lockheed replaced TCE with 1,1,1-Trichloroethane (TCA) and tetrachloroethylene (PCE) as degreasing solvents.

Degreasing operations have been conducted at four Lockheed plants in the Burbank area. Table 1 lists the plant and building numbers in which degreasing units have been or are currently located.

Information on specific dates of installation and operation of the individual pieces of equipment is unavailable.

Note 5 requested information on the use and disposal of TCE and PCE in each building for each year since use began. Degreaser operations in some buildings date back over forty years and it would be extremely difficult to retrieve records or locate people who were familiar with degreaser solvent usage that long ago.

Although, we are unable to provide information on solvent usage by building, Table 2 does present data on PCE disbursements, by plant, for the period 1982 thru 1987.

All unusable degreaser solvents have been transported off-site in drums or vacuum trucks for disposal or reclaiming. Since Lockheed has not maintained complete records of its TCE and PCE disposal activities from the start up of operations we are unable to provide detailed information on the disposition of these solvents as requested by EPA.

TABLE 1 - DEGREASING EQUIPMENT LOCATIONS

Plant	Bldg.	Equipment Type	Solvent
A-1	68	Vapor	PCE
	69	Vapor	PCE
	93	Vapor	PCE
	74	Vapor	PCE
	80	Vapor	PCE
	80	Vapor	TCA
B-1	175	Vapor	PCE
	110	Vapor	PCE
	104	Vapor	PCE
	140B	Vapor	PCE
B-5	P414	Vapor	TCA
B-6	310	Vapor	TCA
	353	Vapor	TCA
	360	Vapor	TCA
	371	Vapor	TCA

TABLE 2 - PCE DISBURSEMENTS (1981 Through 1987)

Plant	Year	Quantity Disbursed (Gals)
A-1	1981	43,768
	1982	30,415
	1983	32,365
	1984	16,280
	1985	7,149
	1986	2,955
	1987	2,744
B-1	1981	30,415
	1982	13,148
	1983	11,321
	1984	23,355
	1985	16,295
	1986	26,599
	1987	20,200

ENCLOSURE NO. 3

LOGS FROM BORINGS 6 AND 7 NEAR CLARIFIER B1-ZB



LOG OF EXPLORATORY BORING

Project No. 41-126-072 Date 10/20/87Client CRACLocation CACAL 8-1-2B ClarifierLogged By E. Higgins Driller D. Jones

Boring No.

8-1-2B-6Sheet 1Of 2

Field location of boring:

Drilling Method Hollow stem Auger 10 = 35/8"8-61 (Brylik Drilling, Inc.) Hole Dia. OD 6"Installation Date Back fill from 80' to 9'3'-1 1/2' Bentonite 1' Concrete

DEPTH	GRAPHIC LOG	BLOW/ft	VAPOR CONCENTRATION	SAMPLE TYPE AND DEPTH	SOIL GROUP SYMBOL (U.S.C.S.)	Water Level				
						Time "				
						Date				
						DESCRIPTION				
0						ASWALT 4"				
1						Imported gravel 4"				
4						Sand, fine-med grain, minor fine gravel, slightly moist, loose, no odor, dark brown				
6						Sand, fine-coarse grain, minor gravel - 1" cobbles, moist, loose, no odor, brown				
8						increase cobbles @ 5'; matrix as above				
10		38	0 ppm	Ring @ 10'		Sand, coarse-med grain, well graded, pebbles gravel to small cobbles, moist, loose, no odor, brown - lt brown color				
						@ 13' increase cobbles (1-1 1/2" diameter); matrix as above				
20		65	2 ppm	Ring @ 20'		Sand, coarse-med grain, well graded, some non size gravel to small cobbles, moist, loose, no odor, lt brown - (salt & pepper)				
30		22	150 ppm	Ring @ 28'		SAND, silty to fine sand, some med grain sand, well graded, moist, loose, minor clay, st. solvent odor, dk brown				
		25	2000 ppm	Ring @ 30'		sand, silty to fine sand, some med grain sand, well graded, moist, st. solvent odor, dk brown				
		65	2000 ppm	Ring @ 32'		Sand, med-coarse grain, minor clay/silt, no gravel, 1" cobbles, well graded, moist, loose, solvent odor, lt brown				
		51	2000 ppm	Ring @ 34'		Sand, fine grain to silty, some med grain, well graded, moist, loose, solvent odor, dk brown				
		71	2000 ppm	Ring @ 36'		Sand, medium-coarse grain, minor gravel to small cobbles, moist, loose, solvent odor, lt brown-grey				
		44	2000 ppm	Ring @ 38'		sand, coarse-med grain, non size gravel to small cobbles, moist, loose, slight-much odor, lt brown-grey				
40		72	500 ppm	Ring @ 40'		Sand, coarse-med grain, minor gravel, small cobbles, moist, loose, slight-much odor, lt brown-grey				



LOG OF EXPLORATORY BORING

Project No. 01-100-77 Date
Client CAIAC
Location B-1-ZB
Logged By EPB/BS Driller D. Jones

Boring No. B-1-ZB6
Sheet 2
Of 2

Field location of boring:

Drilling Method Hollow Stem Auger
B-61 (Reliable Drilling Inc.) Hole Dia.

Installation Date

DEPTH	GRAPHIC LOG	BLOW/ft	VAPOR CONCEN- TRATION	SAMPLE TYPE AND DEPTH	SOIL GROUP SYMBOL (U.S.C.S.)	Water Level				
						Time "				
						Date				
						DESCRIPTION				
50		50	50 ppm	Ring @ 50'		sand, med to coarse grain, minor gravel small cobbles, moist, loose, slight odor, lt brown-grey				
						sand as above				
60		39	2000+ ppm	Ring @ 60'		silt, minor fine-med sand, clay rich, moist, silt cohesive, moderate odor, dark brown				
		31	2000 ppm	Ring @ 62'		silt, minor fine-med sand, clay rich, moist, silt cohesive, moderate strong odor dark brown				
		66	2000 ppm	Ring @ 64'		clay interbedded with: sand, med to coarse grain, minor gravel - small cobbles moist, loose, slight odor, lt brown-grey @ 65' cobbles; matrix = sand; as above + cobbles = 1-1 1/2" Diameter				
70		156	175 ppm	Ring @ 70'		cobbles (1-2") in sand med-grain, minor gravel moist, loose, slight odor, grey-brown				
						cobbles 1-3" Diameter				
						cobbles 2-3" Diameter				
80			Auger reading ~100 ppm	Ring @ 80'		unable to sample @ 80' due to cobble obstruction Drilling halted due to large cobble				
						TD = 80 feet				
90										



LOG OF EXPLORATORY BORING

Project No. 01-12B-01 Date 10/1/72
Client CALAC
Location B-12B
Logged By E. Robbins Driller D. Jones

Boring No. B1-ZB-B7
Sheet 1
of 2

Field location of boring:

Drilling Method Hollow stem Auger B-61--
Mobile Drill Rig (Bit = Bullhead) Hole Dia. _____
Installation Date _____

DEPTH	GRAPHIC LOG	BLOW/ft	VAPOR CONCENTRATION	SAMPLE TYPE AND DEPTH	SOIL GROUP SYMBOL (U.S.C.S.)	Water Level	Time	Date	DESCRIPTION
0									Asphalt 4"
									Imported Gravel
									sand, fine - med grain, some fine gravel to small cobbles, slightly moist, loose, no odor, dk. brown
5									sand, med - fine grain, increase cobbles - coarse gravel; moist, loose, no odor, brown
10									Sand, coarse - med grain, variable cobbles, minor fine med gravel, moist, well sorted, moist, loose, no odor, lt brown cobbles (1/2 - 1" diameter) in sand matrix (as above)
20									as above - decrease in cobbles
			Aug 15 50 ppm						
30			30 ppm						sand, silty - fine grain, med gravel to sm. cobbles, moist, loose, minor clay, silt, solvent odor, dk. brown
			50 ppm						sand, silty, clay-rich, coarse gravel, moist, silt, cohesive, strong solvent odor, dk. brown
40	LA 4 5'		170 ppm						Sand, coarse - med grain, coarse gravel to small cobbles, moist, loose, silt solvent odor, gray-brown
			200 ppm						
50			150 ppm						as above increase cobbles (1/2 - 1" diameter)
			20 ppm						
60			200 ppm						silt, minor fine - med sand, clay-rich, moist, silt, cohesive, moderate odor, dk. brown
			120 ppm						sand, med - coarse grain, minor gravel - sm. cobbles, moist, loose, slight odor, gray brown
70	LA 4 10'		50 ppm						cobbles @ ~65' 1-2" diameter in sand matrix (as above) - matrix dominate
			50 ppm						alternate sand / cobble stringers
			50 ppm						cobbles increase 1-3" diameter
80			170 ppm	Ring @ 80'					sand, coarse fine grain, 1-2" cobbles, silt moist, loose, silt solvent odor, yellowish brown - brown
									Sand / Cobble stringers
									cobbles @ 85' (20 minute break through)
90			200 ppm	Ring @ 90'?					silt @ 85' cobbles silt moist - dry, loose, silt odor, gray (sample ring 94 full silt - maybe rock / powder from hammer blows)
									SAND / COBBLE stringers 90-95'
									cobbles in sand matrix med grain to some medium gravel, moist, loose, silt odor, brown

LA SAMPLE QUESTIONABLE



LOG OF EXPLORATORY BORING

Project No. CL-46-042 Date 10/21/87 Boring No. B-7
Client CALAC Sheet 2
Location B-1-2B of 2
Logged By FRG/CRS Driller D. J. Jorgensen

Field location of boring:

Drilling Method Hand Auger
MOBILE TRAILING B-11; BUSHHARDT Hole Dia. 10 5/8"
Installation Date Block 0-128, Section 14A-14B
sect 14B-20, Rosterite 20-17, Concrete
12-surface

DEPTH	GRAPHIC LOG	BLOW/ft	VAPOR CONCENTRATION	SAMPLE TYPE AND DEPTH	SOIL GROUP SYMBOL (U.S.C.S.)	Water Level	Time	Date	DESCRIPTION
		180	Augers 800ppm	Ring @ 96					SAMPLE NOT POSSIBLE DUE TO COBBLES NO SAMPLE OBTAINED
		120	Sample 2000ppm	Ring @ 97					SAND, fine grain silty, in case gravel, occ. weathered cobbles, moist, loose, silt-mat odor, brown
		200	Augers 200ppm	Ring @ 99					unable to sample due to cobbles NO SAMPLE OBTAINED
100									cobbles (2-3") - minor sand matrix - med- fine grain, moist, loose, moderate, brown
			Auger 1500ppm	(air space 10-40ppm)					cobbles & sand stringers (as above) SAND INCREASE
110		189		Ring @ 110					NO SAMPLE OBTAINED SAMPLE NOT POSSIBLE DUE TO COBBLES
		125	Sample 2000ppm	Ring @ 113					SAND - coarse & fine grain; few gravel size, loose, moist mod odor brown & multi-colored loose, ~115 cobbles 1-3" cobbles / sand stringers
120		202	Sample 12000ppm	Ring @ 120					SAND, very loose to gravel, with fine grain - clay rich matrix, moist, loose, solvent odor, brown-grey
		115	2000ppm	Ring @ 122					gravel, coarse grain to med. size cobbles, matrix - clay rich clay sand, moist, loose, moderate odor, brown
		72	1000ppm	Ring @ 124					Sand & fine grain silty, occ. med. gravel, silt-mat - moist, loose, solvent odor, yellow-brown
		56	2000ppm	Ring @ 126					clay - silty w. v. fine sand, low plasticity, slight-mat. adhesive, slight moist, silt odor, yellow-brown
130		49	1500ppm	Ring @ 128					sand - fine, sandy, minor clay, silt, moist, loose, mod odor, yellow-brown
		203	2000ppm	Ring @ 130					clay - silty, fine grain, moist, moderate odor, brown
		200+		Ring @ 132					NO SAMPLE OBTAINED
		200+		Ring @ 134					NO SAMPLE OBTAINED
		200+		Ring @ 136					NO SAMPLE OBTAINED
		250		Ring @ 138					SANDY SOIL clay silty, silt moist, moist, firm, moderate adhesive, silt, mod odor, brown
140		280		Ring @ 140					moderately moist, moderate adhesive, moderate odor, brown
		146		Ring @ 142					sand, coarse - gravel, loose, moist, moderate odor, brown - multi-colored, moderate adhesive, moderate odor, brown